

## REMARKS/ARGUMENTS

The Office action dated October 16, 2009 has been received and carefully considered. By this amendment, claims 1, 6, 10, and 18 have been amended, and claim 4 has been canceled. After entry of this amendment, claims 1-3, and 5-20 will be pending. In view of the amendments and the following remarks, Applicants respectfully request reconsideration.

### **Reply to Examiner's Response to Arguments**

At the outset, the applicant appreciates the office's detailed reasoning with respect to applicant's prior arguments, which helped the applicant to more fully recognize the examiner's position and interpretation of the cited art. The below arguments and amendments to the claims are responsive to the office's reply and should now address and overcome the examiner's concerns.

(a) The examiner seemed to assert on page 10, paragraph 22, that "...Boniello teaches the comminuted whole coffee cherry including pulp, husks mucilage, green bean..." The applicant disagrees with such characterization. Boniello teaches that:

"...Suitable coffee substrates employed in the present invention as part of or all of the all-coffee nutrient media *include* soluble solids from green extract (aqueous green coffee solids) ground green coffee beans, coffee by products (pulp, coffee husks and mucilage), as well as hydrolyzed spent grounds, roast and ground coffee and brown extract..."

Thus, Boniello teaches a variety of components from a coffee cherry, but *not a step of comminuting coffee cherries and subsequent use of same*. Boniello is also silent on the specific combination of coffee cherry components that would constitute a coffee cherry. Absent specific teaching of such combination, the position that Boniello would teach comminution of a whole coffee cherry is paramount to considering the periodic table of elements as teaching any given chemical.

(b) The examiner seemed to argue on page 11, paragraph 23, that "...Drunen discloses the process of combining comminuted coffee cherry extract..." The applicant notes, however, that the definition of the term "coffee cherry" in Drunen is entirely inconsistent with the applicant's definition of the same term. More specifically, Drunen teaches that:

"...Typically, this waste material is the coffee cherry *material left after coffee beans are removed*. "Coffee cherries" is the common name for the *soft husk material that surrounds coffee beans* on a coffee tree..."(col.2, ln 62-64), and "...'*coffee cherry*' husks that are removed from coffee beans in the processing of coffee..." (col.1, ln 18-19).

This is further reflected in claim 12 of Drunen reciting a step of:

"... processing said coffee fruit to *separate coffee cherries from coffee beans*..."

In contrast, the applicant defined the term "coffee cherry" as:

"... the term "coffee cherry" refers to the *fruit of the coffee tree* (Coffea spec., Family Rubiaceae) in which *exocarp* and *outer mesocarp* (i.e., the pulp) surround the *inner mesocarp* (i.e. the mucilage) and *endocarp* (i.e., the hull), which in turn surround the *seeds* (i.e., the beans). Thus, the term coffee cherry specifically refers to a whole coffee cherry, which may or may not include the stem of the cherry..." (paragraph spanning pages 5-6)

Clearly, Drunen excludes the seeds of the coffee fruit, which is contrary to the presently claimed subject matter. Consequently, when Drunen teaches preparation and combination of an extract of ground dried coffee cherries with ground coffee (see Example III), it should be recognized that *Drunen's extract is made from the husk material that surrounds the coffee beans and not the entire fruit as presently claimed.*

With respect to the applicant's definition, it should be pointed out that the specification may reveal a special definition given to a claim term by the patentee that may even differ from the meaning it would otherwise possess. In such cases, *the inventor's lexicography governs*. See *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and *the inventor's intention, as expressed in the specification, is regarded as dispositive*. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343-44 (Fed. Cir. 2001). See also MPEP 2173.05(a)(III) and MPEP 2111.01 (IV)

(c) The examiner noted on page 11, paragraph 24, that certain prior art would teach that "...various levels of mycotoxins in coffee beans in certain amounts would be effective in the art...". It is unclear what effect the office refers to. Indeed, it is noted that *mycotoxins are poisons and toxic secondary metabolites* produced by an organism of the fungus kingdom, including mushrooms, molds, and yeasts. The term 'mycotoxin' is usually reserved for the toxic chemical products produced by fungi that readily colonize crops (see e.g., *Anal. Chim. Acta* 632 (2): 168–80; and *Int. J. Food Microbiol.* 119 (1-2): 3–10). Clarification is respectfully requested.

Moreover, the examiner also stated that "... Drunen provides as an ingredients, pieces of the whole coffee cherry including ground green coffee beans, coffee by products (pulp, coffee husks and mucilage), as well as hydrolyzed spent grounds, roast and ground coffee (col. 2, lines 57-63) in solution for an extraction process..." The *applicant assumes that the office intended to refer to Boniello* at col. 2, lines 57-63.

The office then stated that "...toxin levels are low in green coffee beans as emphasized by prior [art] references...". The applicant agrees. Indeed, Buecheli et al. (*J. Agric Food Chem* 2000, Vol. 48, No. 4; copy attached) teach in their mycotoxin analysis that the non-ripe and ripe coffee cherries contain *only trace amounts of OTA* (ochratoxin A, a prominent mycotoxin) *in the green coffee and husk fraction*, however, that *OTA is formed during drying in the pulp and parchment*, which is removed in the dehulling process (page 1359). Therefore, the examiner's analysis of low-mycotoxin content in the beans is correct, but not relevant to the claimed subject matter as the prior art analysis is concerned with the coffee beans.

In this context, the applicant refers to Miljkovic (US2002/0187239), and in particular to Figures 1 and 3, and corresponding paragraphs [0038] and [0041], where it is readily evident that the mycotoxin problem is associated with the pulp and parchment. It should also be of note that Miljkovic defines the term "coffee cherry" as the skin and other undesirable components (see [0005]). Remarkably, even in the presence of various detoxification and drying methods shown, it should be recognized that the mycotoxin levels of Miljkovic *are above the claimed ranges*. Therefore, the *prior art specifically teaches high mycotoxin levels in the pulp and parchment, which forms express part of the coffee cherry as presently claimed and defined by applicant*. Consequently, the prior art teaches against the presently claimed subject matter.

(d) With respect to Sivetz, the applicant does not contend that Sivetz teaches harvesting coffee fruit in various stages of ripeness. However, the applicant maintains that the combination of Sivetz and Boniello and/or Drunen is improper as a basis for obviousness.

If one were to combine Boniello's process using the unripe coffee cherries of Sivetz, that combination *would still lack a step of processing the extract to enrich the extract in coffee polyphenols to form a coffee polyphenol-enriched extract*. Notwithstanding such defect, the entirety of Boniello's teaching is directed to production and isolation of acetoin and diacetyl, and thus fails to provide any rationale, motivation, or even expectation of success for modification in a manner such as presently claimed.

Similarly, if one were to combine Drunen's process using the unripe coffee cherries of Sivetz, that combination *would still run afoul with applicant's definition of a coffee cherry*. Clearly, Drunen's express definition of a coffee cherry is contrary to the applicant's definition and as such teaches away from, or even against the presently claimed subject matter. Further, Drunen's express focus is to make use of by-products in coffee production, which would be obviated if one were to modify Drunen to use a whole coffee cherry as defined by the applicant. As such, Drunen lacks any motivation or expectation of success.

### **35 USC §112, 1<sup>st</sup> paragraph**

The Office rejected **claims 1, 10, and 18** as failing to comply with the written description requirement for use of the phrase "extraction process other than fermentation" and use of the term "non-fermented". The applicant respectfully disagrees. Nevertheless, the objected terms have been removed from the claims and the rejection should therefore be moot.

### **35 USC §103**

The Office rejected **claims 1, 4, and 6-14** as being obvious over Boniello et al. (U.S. Pat. No. 4,867,992) in view of Drunen et al. (U.S. Pat. No. 6,572,915). The applicant respectfully disagrees for various reasons.

Claims 1, 4, and 6-8: As amended herein, *the element of inclusion of the whole or comminuted coffee cherry into the food product in claim 1 was deleted* and the examiner's rejection should therefore be overcome. Moreover, and with respect to the remaining limitation,

it should be noted that amended claim 1 expressly requires a step of *extracting the comminuted whole coffee cherry* with a solvent *to produce a polyphenol-enriched coffee cherry extract*. As the examiner noted in the office action on page 3, lines 2-3, extraction and fermentation are not the same processes. Therefore, Boniello should no longer be relevant to amended claim 1 and dependent claims 4, and 6-8. The same defects also apply to claim 9.

With further respect to the examiner's argument in the paragraph spanning pages 5-6 that Drunen would teach selective extraction of antioxidant, such as from comminuted coffee cherry, the applicant points out that *Drunen's definition of coffee cherry is entirely inconsistent with the same term as defined by the applicant*. The argument is thus not properly supported with respect to the combination of Drunen and Boniello. Therefore, the rejection of amended claims 1, 4, and 6-9 should be withdrawn.

Claims 10-14: With respect to the rejection of claim 10, the examiner stated that "...*Boniello* discloses isolating nutrient (col. 2, lines 57-59) from coffee cherry (col. 2, line 61) and "communicated" coffee cherry (col. 2, lines 62-63) with at least one solvent to produce an extract (col. 2, lines 63-68; and col. 3, lines 1-6). It is unclear to the applicant where the support can be found in these passages.

First, *Boniello does not isolate a nutrient. At best, Boniello adds a nutrient (coffee substrate) to the fermentation liquid.*

Second, *Boniello fails to make any reference to any coffee cherry.*

Third, *Boniello does not teach comminuted coffee cherries*, but merely provides a laundry list of coffee substrates.

Fourth, *Boniello does not make an extract but a fermentation medium*, which are entirely different process components as acknowledged by the office (office action on page 3, lines 2-3).

The office further stated "...Examiner considers the coffee cherry was "whole" coffee cherry before it was comminuted or separated into different parts of coffee cherry..." Once again, it seems as though the office would argue that a recitation of various items that include

portions of a coffee fruit would be equivalent to the entire coffee fruit. Such argument is entirely untenable (see above).

Notwithstanding the above defects, claim 10 was further amended to include a step of processing the extract to enrich the extract in the nutrient to form a nutrient-enriched extract, wherein the nutrient is a coffee polyphenol or a coffee polysaccharide. This step is neither taught nor suggested in Boniello. Indeed, Boniello expressly teaches against the claimed subject matter as Boniello is concerned with production and isolation of acetoin and diacetyl. Thus, Boniello fails to provide any motivation to modify such as to arrive at the presently claimed subject matter. The same deficiencies also apply to the rejection of claims 11-14. Therefore, the rejection of amended claims 10-14 should be withdrawn.

The Office rejected **claims 5 and 17** as being obvious over Boniello et al. (U.S. Pat. No. 4,867,992) in view of Drunen et al. (U.S. Pat. No. 6,572,915) as applied above and further view of Fabian (WO 97/42831), Duvic et al. (U.S. Pat. No. 5,792,931) and Blanc et al. (J. Agric Food Chem. 1998). The applicant once more respectfully disagrees for various reasons.

As claim 5 is dependent on amended claim 1, the same defects and arguments as noted above apply and are not reiterated here. Similarly, claim 17 is dependent on amended claim 10, and the same defects and arguments as noted above apply and are not reiterated here. Fabian, Duvic et al., and Blanc et al. fail to remedy these defects.

The examiner noted that Fabian would be illustrative of extremely small quantities of mycotoxins, however, omits that Fabian's quantitative analysis is based on coffee beans rather than the coffee fruit as presently claimed. The applicant refers to the above section "Reply to Examiner's Response to Arguments" for a discussion of mycotoxins in coffee fruit. It should be readily evident from there that the claimed mycotoxin levels of the coffee fruit are not taught by the prior art. Thus, the examiner's assertion that it would have been well known in the art that the quantities of specific mycotoxins would be low in coffee cherries is ill supported and the rejection of claims 5 and 17 should be withdrawn.

The Office rejected **claims 2, 3, 15, and 16** as being obvious over Boniello et al. (U.S. Pat. No. 4,867,992) in view of Drunen et al. (U.S. Pat. No. 6,572,915) as applied above and

further view of Sievetz. (Coffee Technology 1979). The applicant respectfully disagrees for various reasons.

As claims 2-3 are dependent on amended claim 1, and as claims 15-16 are dependent on amended claim 10, and the same defects and arguments as noted above apply and are not reiterated here. Once again, Sievetz fails to remedy these defects. The applicant refers to the above section "Reply to Examiner's Response to Arguments" for further discussion of Sivetz. Therefore, in light of the amendments and arguments provided above, the rejection of claims 2, 3, 15, and 16 should be withdrawn.

The Office rejected **claims 18-20** as being obvious over Boniello et al. (U.S. Pat. No. 4,867,992) in view of Drunen et al. (U.S. Pat. No. 6,572,915) as applied to the rejection of claim 1 and further view of The Free Dictionary by Farlex. The applicant again respectfully disagrees for various reasons.

The limitation of the food product comprising a whole coffee cherry is deleted from claim 18 (and claims 19-20 by virtue of their dependence on amended claim 18). Moreover, amended claim 18 also requires advertising that the *food product must include a polyphenol-rich extract of the whole coffee cherry*, or that the food product includes *an antioxidant that is isolated from the whole coffee cherry*. These elements are neither taught nor suggested in the cited art. Once more, Boniello is concerned with microbial acetoin and diacetyl production and as such only teaches preparation of a fermentation medium, but not preparation of a polyphenol-rich extract of the whole coffee cherry. Likewise, there is also absolutely no teaching that the food product must include an antioxidant that is isolated from the whole coffee cherry. Thus the rejection of claims 18-20 should be withdrawn.

**Request For Allowance**

Claims 1-3 and 5-20 are pending in this application. The applicant requests allowance of all pending claims.

Respectfully submitted,  
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